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SURVEYS FOR SOUTHWESTERN WILLOW  
FLYCATCHERS WITHIN VR-176, SUMMER 2000

Scott Stoleson and Deborah M. Finch

**Final Report**

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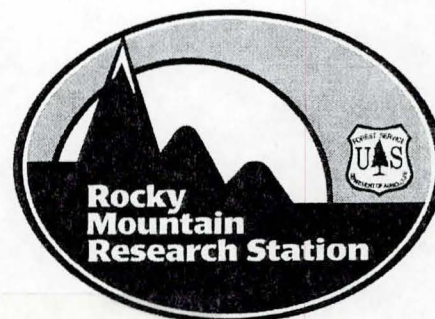
# **SURVEYS FOR SOUTHWESTERN WILLOW FLYCATCHERS WITHIN VR-176, SUMMER 2000**

## **FINAL REPORT TO GEO-MARINE, INC.**

November, 2000

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## EXECUTIVE SUMMARY

As part its Biological Opinion concerning the proposed expansion of activities in VR-176 by the German Air Force, the US Fish and Wildlife Service required the implementation of survey and monitoring programs for five species of concern, including the southwestern willow flycatcher. In 2000, field crews of the Rocky Mountain Research Station conducted surveys for flycatchers along 27.7 km of riparian habitat in five drainages within VR-176: the San Francisco and Mimbres Rivers and West Fork of the Gila River. These drainages are located close to the largest known flycatcher population on the lower Gila River in New Mexico. No flycatchers were located in any of the drainages surveyed. Continuation of a prolonged drought that began with the La Niña climate pattern in 1999 is likely the ultimate cause for severe declines in flycatcher numbers in the Gila Valley and elsewhere throughout its range. These conditions make it highly unlikely that flycatchers would have emigrated to, or remained in, the drainages surveyed. Recent reports from the core of the wintering range in Costa Rica indicate the drought has ended. It seems likely that the exceptionally high productivity in the Gila population recorded in 2000 may translate into emigration from that population into sites within VR-176. We therefore recommend that surveys be repeated in 2001 in the two drainages with the most extensive and healthiest riparian vegetation.

Concurrently with flycatcher surveys, we surveyed for yellow-billed cuckoos, another riparian obligate bird under consideration for listing as endangered by the USFWS. Small numbers of cuckoos were located by vocalization in both the Mimbres and San Francisco drainages. The cuckoo arrives and breeds later than any other migratory bird in the region. Our data on cuckoo presence and breeding collected in the Cliff-Gila Valley suggest that surveys conducted prior to July 10 are unlikely to provide a good estimate of cuckoo numbers. We recommend that should cuckoo surveys be continued, that they be conducted well into August to obtain the best estimates of cuckoo numbers and occurrence.

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## INTRODUCTION

The southwestern willow flycatcher (*Empidonax traillii extimus*) is a Neotropical migrant bird found during the breeding season from southern California and Baja California eastward through Arizona, southern Utah, southern Colorado, New Mexico, and trans-Pecos Texas (Unitt 1987). This critically endangered subspecies is an obligate riparian specialist, nesting in dense vegetation usually near surface water or saturated soils (U.S. Fish and Wildlife Service 1995). The US Fish and Wildlife Service listed *E. t. extimus* as endangered in 1995. As of 1996, flycatchers had been found breeding at about 109 sites throughout the southwestern United States (Marshall 2000). Approximately 70% of extant sites consist of 10 or fewer territories. The entire known breeding population in 1996 was estimated at about 549 pairs (Marshall 2000). However, many areas of the Southwest still have not been surveyed.

The largest known breeding concentration of southwestern willow flycatchers is located in the Cliff-Gila Valley of southwestern New Mexico, with approximately 243 pairs in 1999 (Stoleson and Finch unpublished data). Ongoing riparian recovery efforts and livestock exclusion by the Gila National Forest and The Nature Conservancy of New Mexico are creating healthy riparian habitat in numerous sites in southwestern New Mexico that were not known to be occupied by southwestern willow flycatchers as of 1999. Continuous improvements in habitat quality as well as proximity to the large and expanding flycatcher population in the Cliff-Gila valley suggest that these sites are the most likely targets for colonization by flycatchers in the near future.

The western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), another obligate riparian bird, is likely to be listed as threatened or endangered by the U.S. Fish and Wildlife Service in the near future (USFWS 2000). In 1999, we noted the presence of cuckoos during surveys on the San Francisco, Mimbres, and the Main Trunk of the Gila. We surveyed for cuckoos concurrently with flycatcher surveys in 2000.

**Purpose of Surveys**

In November of 1997, the U.S. Air Force entered into formal consultation with the U.S. Fish and Wildlife Service, in accordance with Section 7 of the Endangered Species Act, regarding the Proposed Expansion of German Air Force Operations at Holloman Air Force Base. On 8 May 1998, the Service issued its Biological Opinion that required the Air Force to implement a survey and monitoring program for five species of concern, including the southwestern willow flycatcher. Several potential flycatcher breeding sites located on the San Francisco, Gila, and Mimbres Rivers, lie within the VR-176 flight path. We report the results of field surveys for southwestern willow flycatchers conducted within VR-176 during the breeding season of 2000.

**STUDY SITES**

We surveyed riparian woodlands along the San Francisco, Gila, and Mimbres Rivers within the flight path of VR-176. These sites appeared to be the most likely to be inhabited by flycatchers because of their habitat structure and composition, proximity to water, and proximity to the expanding population in the Cliff-Gila Valley.

**Mimbres River Valley**

The Mimbres River drains the western portion of the Gila National Forest and flows southward towards Deming, New Mexico. We surveyed sites comprising a discontinuous set of lands owned and managed by The Nature Conservancy of New Mexico. Two contiguous parcels lie south of NM Route 156 (Disert, Dominguez), and cover about 2.5 km of streamside habitat. Two contiguous parcels lie north of Rt. 156 (Giraud, McAnally), and extend about 3.2 km along the Mimbres River. Together these sites comprise approximately 5.7 linear km of streamside habitat. Elevations range from 1889 to 1729 m.

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This site is located on the nearest drainage to the Cliff-Gila Valley (approx. 40 km distant). A habitat assessment conducted by the Rocky Mountain Research Station in 1998 found that portions of the Preserve did not differ in habitat structure or floristics from densely occupied flycatcher breeding sites on the Gila River (Stoleson *et al.* 1998). The upper Mimbres patches are characterized by dense, multistoried box elder (*Acer negundo*) and willow (*Salix* spp.) under a canopy of lanceleaf cottonwood (*Populus lanceolata*). These patches appear to be high quality habitat for flycatchers. The Disert and Dominguez parcels support a mosaic of tall cottonwoods with little undergrowth and younger, dense patches of willow and seepwillow (*Baccharis glutinosa*). Although this stretch has exhibited rapid regeneration since 1998, it cannot yet be considered high quality habitat.

### **West Fork, Gila River**

The West Fork of the Gila River was surveyed beginning at the confluence of the East and West forks of the Gila River and extending approximately 12 km upstream to Grudging's cabin. Elevations range from approximately 1672 to 1710 m. This stretch includes the Heart-Bar Wildlife Refuge run by the New Mexico Department of Game and Fish. Much of the valley bottom here is relatively wide. Potentially suitable habitat is discontinuous, with numerous short stretches having little or no woody vegetation. However, many portions, including the Heart-Bar, support extensive dense stands of cottonwood, willow and alder.

### **San Francisco River**

The San Francisco River drains most of the northwestern portion of the Gila National Forest and parts of the Apache-Sitgreaves National Forest. Much of the valley bottom is private property in settlements such as Glenwood, Pleasanton, and Alma, or in irrigated agriculture and pastures. Surveys were conducted on discontinuous portions of National Forest land from approximately 7 km south of the town of Glenwood, downstream approximately 10 km. Again, access to some private portions was denied, prevented our surveying both those private portions and some isolated FS parcels. We obtained permission to survey private land belonging to Ms. Helen

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Wilson in Pleasanton (approximately 5 km south of Glenwood), but this area was found to be an open cottonwood gallery and hence unsuitable for flycatchers, and was not surveyed.

Most of the San Francisco Valley surveyed was in a broad but deep, steep-sided canyon. Approximately one half of the stream length was bordered by dense stands of willow, alder, and cottonwood. Other portions supported a variety of riparian habitat types, including dense young thickets of seepwillow, and open groves of sycamore and walnut. All riparian stand types were surveyed. Running water was present throughout the season.

## **SURVEY METHODS**

### **Willow Flycatchers**

Each site was surveyed systematically for willow flycatchers using standardized survey techniques developed by the U.S. Fish and Wildlife Service (Sogge *et al.*, 1997). These techniques employ the playing of recordings of flycatcher song to elicit responses from territorial birds. All flycatchers heard or seen were recorded. All surveys were conducted between sunrise and noon, as birds tend to be unresponsive after noon (Sogge *et al.*, 1997). Because several of the areas to be surveyed were quite remote, most surveys entailed traveling a significant portion of the day before the survey in order to conduct the surveys in the recommended time frame. Surveys were not conducted during periods of rain or strong winds. Surveyors from the Rocky Mountain Research Station held all appropriate state and federal permits required for surveying and monitoring southwestern willow flycatchers, and all had attended a mandatory survey protocol training session before initiating fieldwork.

### **Yellow-billed Cuckoos**

No standardized survey methodology yet exists for the cuckoo. We followed the experimental protocol developed by the USGS Colorado Plateau Field Station, in Flagstaff, Arizona (URL: <http://www.usgs.nau.edu/ybcu/f/navigation.htm>). This protocol resembles that of the willow

flycatcher, employing broadcast recordings of cuckoo contact calls every 100 m along riparian corridors. Surveys were conducted concurrently with flycatcher surveys between dawn and noon, and discontinued during steady rainfall. We recorded presence of any cuckoos heard or seen on these surveys.

## **RESULTS & DISCUSSION**

### **Survey Results: Willow Flycatchers**

As in 1999, we found no willow flycatchers in any of the surveyed riparian habitats (Table 1). We failed to find any indication of flycatchers in the Nature Conservancy's Giraud parcel on the Mimbres River, where we sighted a possible willow flycatcher in 1999. In all areas surveyed, the habitat exhibited substantial regeneration since 1999.

### **Survey Results: Yellow-billed Cuckoos**

We noted cuckoos on both the Mimbres and San Francisco Rivers (Table 1). In both cases, the numbers detected were small, and all detections were by vocalization.

### **Climate as a Possible Influence on Survey Results again in 2000**

In 1999, the La Niña weather phenomenon produced near-record breaking drought during the winter and spring months. The summer monsoons of 1999 were unusually heavy, but ended prematurely. August of that year was drier than normal, and little precipitation fell at all in the Gila area for the following nine months. At the U Bar ranch headquarters approximately 15 km northwest of Silver City, the period of August 1999 through August of 2000 received a total of just over 13 cm of rain, or about 36% of normal (D. Ogilvie, personal communication).

The number of willow flycatchers arriving to breed in the Cliff-Gila Valley in 2000 dropped substantially from previous years (243 pairs in 1999 vs. 139 pairs in 2000: Stoleson & Finch

unpublished data). Similarly, population declines of up to 40% were reported from both the Kern River Preserve and Camp Pendleton in California (M. Whitfield, personal communication). This suggests a possible range-wide decline in numbers. Such a decline is likely due to extensive drought during the breeding season of 1999, followed by unusually dry conditions on

**Table 1.** Timing and results of surveys for southwestern willow flycatchers and yellow-billed cuckoos within VR-176, 2000.

| SITE                        | Date    | Time      | Surveyor <sup>1</sup> | No. SWWF <sup>2</sup> | No. YBCU <sup>2</sup> | No. BHCO <sup>2</sup> | Weather   |
|-----------------------------|---------|-----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|
| <b>San Francisco Valley</b> |         |           |                       |                       |                       |                       |           |
|                             | 6/01/00 | 0711-1010 | RH/SS                 | 0                     | 0                     | 1 M                   | clear     |
|                             | 6/16/00 | 0715-1000 | HW/RH                 | 0                     | 0                     | 1 M                   | clear     |
|                             | 7/10/00 | 0710-1000 | HW/RH                 | 0                     | 2 heard               | 2M, 1F                | p. cloudy |
| <b>Mimbres Valley</b>       |         |           |                       |                       |                       |                       |           |
| Disert &                    | 5/31/00 | 1045-1200 | HW/BT                 | 0                     | 0                     | 1                     | clear     |
| Dominguez                   | 6/20/00 | 1020-1145 | HW/BT                 | 0                     | 0                     | 0                     | clear     |
|                             | 7/12/00 | 1030-1150 | CW                    | 0                     | 0                     | 1                     | p. cloudy |
| MacAnally                   | 5/31/00 | 0648-0810 | HW/BT                 | 0                     | 0                     | 9                     | clear     |
|                             | 6/20/00 | 0645-0800 | HW/BT                 | 0                     | 1 heard               | 0                     | clear     |
|                             | 7/12/00 | 0615-0845 | HW                    | 0                     | 2 heard               | 1                     | cloudy    |
| Giraud                      | 5/31/00 | 0825-0915 | HW/BT                 | 0                     | 0                     | 6                     | clear     |
|                             | 6/20/00 | 0820-0915 | HW/BT                 | 0                     | 0                     | 0                     | clear     |
|                             | 7/12/00 | 0900-1015 | CW                    | 0                     | 1 heard               | 2                     | p. cloudy |
| <b>Gila Valley</b>          |         |           |                       |                       |                       |                       |           |
| West Fork                   | 5/23/00 | 0630-1030 | HW/BT                 | 0                     | 0                     | 1                     | clear     |
|                             | 6/20/00 | 0605-1015 | RH/CW                 | 0                     | 0                     | 1                     | clear     |
|                             | 7/13/00 | 0630-1100 | CW                    | 0                     | 0                     | 5                     | cloudy    |

<sup>1</sup> RH= Rebecca Hunt, SS=Scott Stoleson, BT= Bill Trussell, CW = Cynthia Wolf, HW= Hope Woodward

<sup>2</sup> SWWF = southwestern willow flycatcher, YBCU = yellow-billed cuckoo, BHCO = brown-headed cowbird

the wintering grounds in Central America. For example, precipitation at the northern end of the wintering grounds in Guerrero, Mexico, was 44% below normal for the period Jan – Aug of 2000 (SNM 2000). Similarly, precipitation at Liberia, Costa Rica, in the center of the wintering grounds, was 35% below normal levels for the same period (INM 2000). Thus, it seems likely that populations of the entire subspecies have been reduced because of extensive drought on both the breeding and wintering grounds.

In general, populations tend to expand into new areas when they are increasing, and often contract spatially when declining (Caughley 1977). In the Cliff-Gila Valley in 2000, we witnessed local contraction away from the peripheries of the population. We suggest that expansion into the drainages surveyed within VR-176 was very unlikely to have occurred this year because of the declines experienced by this population.

Reproductive success in the Cliff-Gila Valley was exceptionally high this year compared to the previous three years. Simple nest success exceeded 66%, and an unusually large percentage of pairs had second broods (Stoleson & Finch, unpublished data). The high reproductive effort this year suggests the possibility of an increase in population in 2001, and consequently a greater potential for range expansion. Any population increase would be contingent on the flycatchers experiencing at least average rates of over-winter survival. That survival will depend on conditions on the wintering grounds. A recent visit to the wintering grounds in Costa Rica by a field crew from the Colorado Plateau Field Station found the drought had ended, and heavy rains were occurring (T.J. Koronkiewicz, personal communication). Thus it seems likely that over-winter survival will be higher than in the previous two years.

Because of the high productivity in 2000 combined with a probable high overwinter survival rate, 2001 may be the year with the highest likelihood of emigration from the Cliff-Gila population in many years. Therefore, we recommend that limited surveys should be conducted

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again in 2001, specifically in those drainages with the healthiest riparian vegetation: the Mimbres and the San Francisco.

### **Yellow-billed Cuckoos**

We detected cuckoos in two of the three drainages surveyed. Information from studies in the Cliff-Gila Valley suggests these observations underestimated the numbers of cuckoos using these habitats. First, the cuckoo is the last migratory bird to arrive at the site and the last to breed. We first detected cuckoos in our intensively studied sites in the first week of June, and the first nest was found in the following week (unpublished data). Of 15 cuckoo nests found in 2000, 11 were found, and presumably initiated, after July 10 – the last survey date for willow flycatchers. Unlike the flycatchers, cuckoos vocalize only infrequently before they have nestlings. Therefore, the likelihood of detecting cuckoos even when present is relatively low before mid-July.

Surveys based on the timing of the flycatcher survey protocol may be inappropriate for assessing numbers of cuckoos. Secondly, we found that the response of cuckoos to tapes of their territorial call (“kowlp” call: Hughes 1999) was sporadic at best. We actually observed cuckoos foraging while we surveyed without them exhibiting any noticeable response to the tape. Clearly more work is needed in developing a useful survey protocol for this species. We suggest that should cuckoo surveys be continued in the future, they be conducted from late June until at least mid-August.

### **ACKNOWLEDGMENTS**

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